

In the Claims

Claims 1-52 (cancelled).

53. (new) A method of forming a boron and phosphorous doped silicon oxide having Si-F bonds, comprising:

providing a substrate within a CVD reaction chamber at a pressure of from about 1 Torr to about 760 Torr and at a substrate temperature of from about 400 °C to about 700 °C;

flowing F-TES into the reaction chamber at a flow rate of from about 100 mg/min to about 1,000 mg/min;

flowing an ozone-containing gas into the reaction chamber at a flow rate of from about 1,000 sccm to about 8,000 sccm, the gas containing a mixture of from about 5 vol% to about 15 vol% ozone in O₂;

flowing TEPO into the reaction chamber at a flow rate of from about 25 mg/min to about 400 mg/min;

flowing TEB into the reaction chamber at a flow rate of from about 25 mg/min to about 400 mg/min;

providing the F-TES, ozone-containing gas, TEPO, and TEB simultaneously in the reaction chamber; and

depositing a boron and phosphorous doped silicon oxide having Si-F bonds onto the substrate at a rate of from about 500 Å/min to about 10,000 Å/min with a plasma present in the reaction chamber, the doped silicon oxide comprising from about 3 atomic % to about 12 atomic % total of boron and phosphorous, comprising from about

0.1 atomic % to about 10 atomic % fluorine, comprising more fluorine than occurs in a doped silicon oxide deposited from an otherwise identical method using O_2 or H_2O_2 instead of O_3 , exhibiting a flow temperature that is from about 50 °C to about 100 °C less than occurs in an otherwise identical doped silicon oxide lacking the fluorine, exhibiting a dielectric constant that is less than occurs in an otherwise identical doped silicon oxide lacking the fluorine, and exhibiting a fixed charge that is less than occurs in a doped silicon oxide deposited from an otherwise identical method using TEOS instead of F-TES.

54. (new) The method of claim 53 wherein the CVD reaction chamber comprises a single wafer, cold wall chamber.

55. (new) The method of claim 53 wherein the pressure comprises from about 10 Torr to about 700 Torr.

56. (new) The method of claim 53 wherein the pressure comprises from about 400 Torr to about 700 Torr.

57. (new) The method of claim 53 wherein the doped silicon oxide comprises from about 2 atomic % to about 10 atomic % fluorine.

58. (new) The method of claim 53 wherein the doped silicon oxide comprises 2 atomic % fluorine.

59. (new) The method of claim 53 wherein the depositing occurs at a rate of from about 8,000 Å/min to about 10,000 Å/min.

60. (new) The method of claim 53 wherein the pressure is 600 Torr, the substrate temperature is 500 °C, the ozone-containing gas flow rate is 2,000 sccm, the deposition rate is 8,000 Å/min, the boron composition is 3 atomic %, and the phosphorous composition is 7 atomic %.

61. (new) A method of forming a silicon oxide having Si-F bonds, comprising:
providing a substrate within a CVD reaction chamber at a pressure of from about 1 Torr to about 760 Torr and at a substrate temperature of from about 400 °C to about 700 °C;

flowing F-TES into the reaction chamber at a flow rate of from about 100 mg/min to about 1,000 mg/min;

flowing an ozone-containing gas into the reaction chamber at a flow rate of from about 1,000 sccm to about 8,000 sccm, the gas containing a mixture of from about 5 vol% to about 15 vol% ozone in O₂;

providing the F-TES and ozone-containing gas simultaneously in the reaction chamber; and

depositing a silicon oxide having Si-F bonds onto the substrate at a rate of from about 500 Å/min to about 10,000 Å/min with a plasma present in the reaction chamber, the silicon oxide comprising from about 2 atomic % to about 10 atomic % fluorine, comprising more fluorine than occurs in a silicon oxide deposited from an otherwise identical method using O₂ or H₂O₂ instead of O₃, exhibiting a flow temperature that is from about 50 °C to about 100 °C less than occurs in an otherwise identical silicon oxide lacking the fluorine, exhibiting a dielectric constant that is less than occurs in an otherwise identical silicon oxide lacking the fluorine, and exhibiting a fixed charge that is less than occurs in a silicon oxide deposited from an otherwise identical method using TEOS instead of F-TES.

62. (new) The method of claim 61 wherein the CVD reaction chamber comprises a single wafer, cold wall chamber.

63. (new) The method of claim 61 wherein the pressure comprises from about 10 Torr to about 700 Torr.

64. (new) The method of claim 61 wherein the pressure comprises from about 400 Torr to about 700 Torr.

65. (new) The method of claim 61 wherein the silicon oxide comprises 2 atomic % fluorine.

66. (new) The method of claim 61 wherein the depositing occurs at a rate of from about 8,000 Å/min to about 10,000 Å/min.

67. (new) The method of claim 61 wherein the pressure is 600 Torr, the substrate temperature is 500 °C, the ozone-containing gas flow rate is 2,000 sccm, the deposition rate is 8,000 Å/min, the boron composition is 3 atomic %, and the phosphorous composition is 7 atomic %.

68. (new) A method of forming a silicon oxide having Si-F bonds, comprising:
providing a substrate within a single wafer, cold wall, CVD reaction chamber at a pressure of 600 Torr and at a substrate temperature of 500 °C;

flowing F-TES into the reaction chamber at a flow rate of from about 100 mg/min to about 1,000 mg/min;

flowing an ozone-containing gas into the reaction chamber at a flow rate of 2,000 sccm, the gas containing a mixture of from about 5 vol% to about 15 vol% ozone in O₂;

providing the F-TES and ozone-containing gas simultaneously in the reaction chamber; and

depositing a silicon oxide having Si-F bonds onto the substrate at a rate of 8,000 Å/min with a plasma present in the reaction chamber, the silicon oxide comprising 2 atomic % fluorine.

69. (new) The method of claim 68 wherein the silicon oxide comprises more fluorine than occurs in a silicon oxide deposited from an otherwise identical method using O₂ or H₂O₂ instead of O₃, exhibits a flow temperature that is from about 50 °C to about 100 °C less than occurs in an otherwise identical silicon oxide lacking the fluorine, exhibits a dielectric constant that is less than occurs in an otherwise identical silicon oxide lacking the fluorine, and exhibits a fixed charge that is less than occurs in a silicon oxide deposited from an otherwise identical method using TEOS instead of F-TES.

70. (new) The method of claim 68 wherein the silicon oxide comprises 3 atomic % boron and 7 atomic % phosphorous.